Cotton/Soybean Insect Newsletter

Volume 15, Issue #14 Edisto Research & Education Center in Blackville, SC 6 August 2020

Pest Patrol Alerts

The information contained herein each issue is available via text alerts that direct users to online recordings. I will update the short message often for at least as long as the newsletter runs. After a new message is posted, a text message is sent to alert users that I have recorded a new update. Users can subscribe for text message alerts for my updates in two easy steps. Step one: register by texting **pestpat7** to 97063. Step two: reply to the confirmation text you receive by texting the letter "y" to complete your registration. Pest Patrol Alerts are sponsored by Syngenta.

Updates on Twitter

When noteworthy events happen the in the field, I will be sending them out quickly via Twitter. If you want to follow those quick updates, follow me at **@bugdocisin** on Twitter.

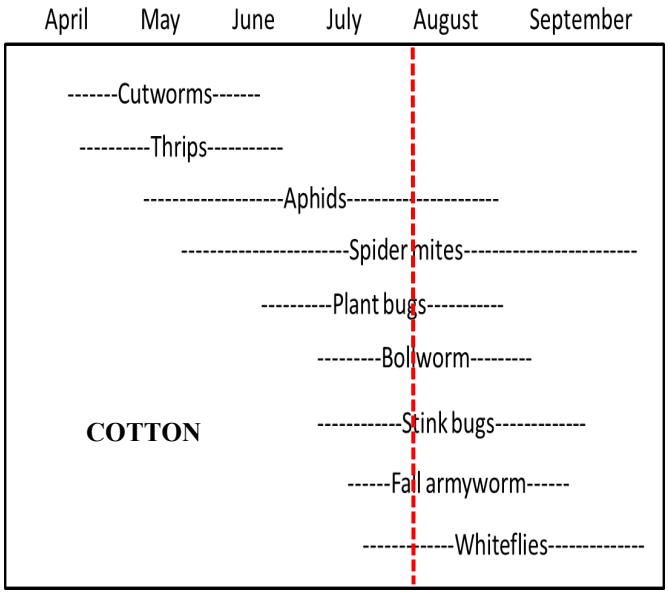
News from Around the State

Drake Perrow, crop consultant in Calhoun County, sent me a text earlier this week with comments about sprays missing some bollworms and stink bugs in cotton. Obvious reasons might be choice and efficacy of products used, resistance development, and others, but he was wondering if folks might be spraying insecticides through tips that produce very coarse droplets designed for new herbicide technologies. That could certainly be part of the problem – using low-drift spray systems to deliver insecticides. We want small droplets to fog in on insects and penetrate the canopy, but we have to minimize drift of herbicides. This is an issue, for sure, if both herbicides and insecticides are going out on the same pass using coarse droplets. Because input costs are a real concern this season, I understand minimizing trips across fields, but just realize that you might be putting your insecticide at a disadvantage with these tips. Expect some target insects to be missed. **Fleming McMaster**, local crop consultant, asked a great question about non-irrigated cotton that has quit blooming, with several weeks yet to go. The question was about what to do if rains come and "restart" blooming and setting of fruit – should those bolls be protected from stink bugs, and what week of bloom do you call it? Fantastic question. Under those circumstances, you can likely pick up where you left off on week of bloom, with a pause on the dynamic boll-injury threshold. In the lower half of the Coastal Plain in SC, we can have blooms through August and into the first week of September turn into bolls that significantly contribute to yield. This gets pushed back into August some for the Pee Dee Region and Upstate. Termination rules for insecticide use get a little fuzzy when Mother Nature sends hot, dry weather our way…we have to adjust for our dryland fields. We can keep irrigated fields on track and manage stink bugs without this potential "pause" in the threshold using week of bloom. This is why having a consultant think and worry about your crop is well worth the money. Send me your reports for this section!

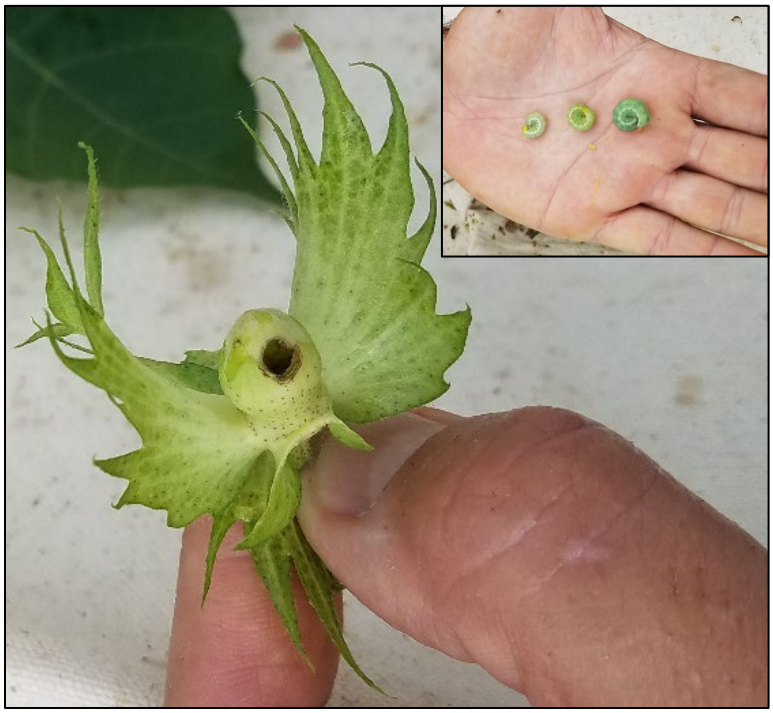
Cotton Situation

As of 2 August 2020, the USDA NASS South Carolina Statistical Office estimated that about 80% of the crop is squaring, compared with 74% at this time last week, 96% at this time last year, and 92% for the 5-year average. About 48% of the crop is setting bolls, compared with 27% at this time last week, 62% at this time last year, and 63% for the 5-year average. The condition of the crop was described as 11% excellent, 50% good, 21% fair, 12% poor, and 6% very poor. These are observed/perceived state-wide averages.

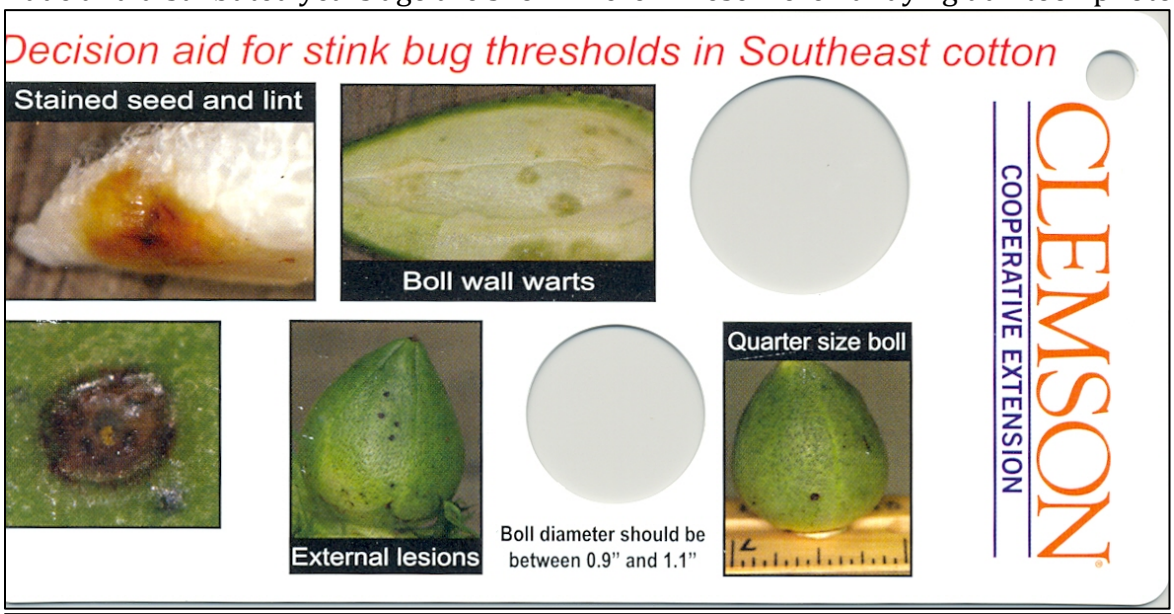
Cotton Insects

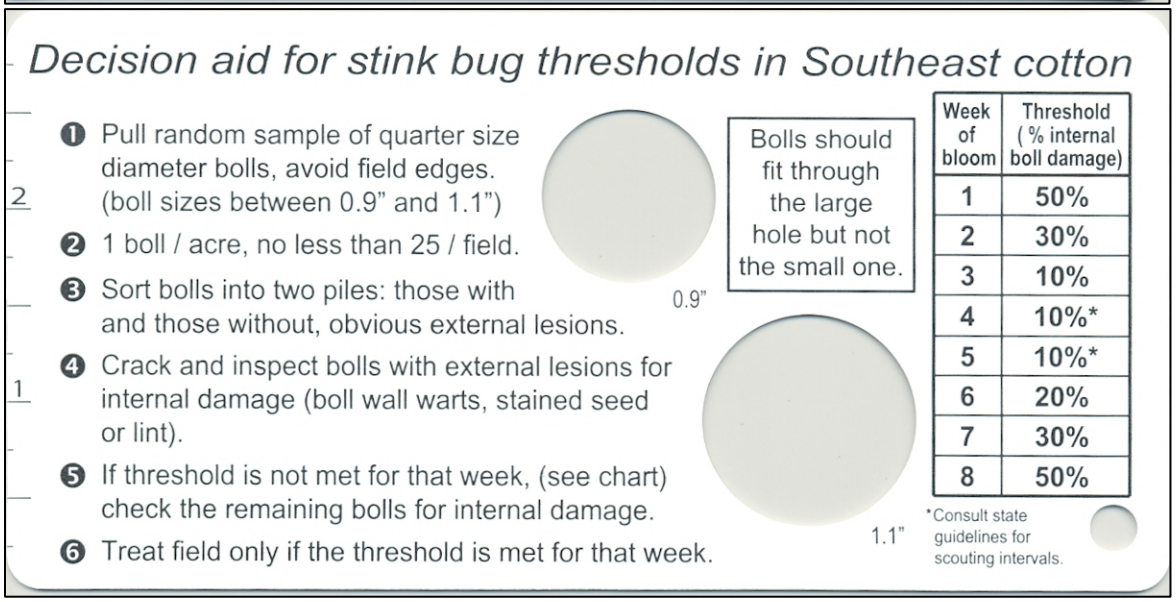


Captures of bollworm moths in pheromone traps have decreased some, as this flight out of corn subsides. The recent widespread rain storms will wet the soil and undoubtedly allow more moths to emerge from corn acres. The generation that has cycled through early cotton and other hosts after corn will likely make another showing as moths also. So, there might be another round with bollworm in another week or two. We will see. Continue to watch 2-gene Bt cotton. I observed threshold levels of square and boll damage this week in 2-gene Bt cotton, so the pressure is there with the egg lay and hatched out larvae. The Bt technology is getting most of them, but some are going to make it through, despite our best efforts. Eggs deposited on blooms that dry in a few days produces bollworms that "size up" on blooms with reduced toxin expression and often make it into boll tips under bloom tags. Control of these caterpillars is difficult, and sprays must be timely. Any counts of bollworm eggs at or exceeding 20 eggs per 100 plants should get your attention. If 3 or more larvae are found per 100 plants or damage to bolls exceeds 5%, treatment thresholds have been met. Most treatments applied during the first couple of weeks of bloom will likely provide the best control of bollworm escaping Bt toxins.



We are officially almost a week into "stink bug month" – August! I am seeing more stink bugs in the crop, and they should be the focus of insect management efforts in cotton from here to the end of the insect season. I hope you know in what week of bloom each of your fields are this week. Proper use of our dynamic boll-injury threshold requires you to know what week of bloom you are in for each field. As I have mentioned before, generally, cotton starts blooming about 60 days after planting. Photos of the pocket guide we made and distributed years ago are shown here. These were handy…glad I took photos!





Instructions for using the boll-injury threshold are shown on the next two pages.

CLEMSON UNIVERSITY

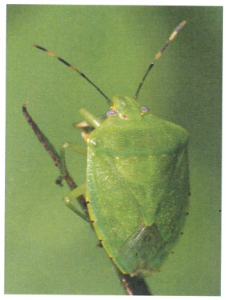


Photo by D. Mott, NC State

SCOUTING FOR STINK BUG DAMAGE IN SOUTHEAST COTTON:

Description and Use of a Pocket Scouting Decision Aid

Cotton growers in the Southeast can use a pocket-size scouting decision aid to assess and manage stink bug damage based on thresholds for different cotton growth stages.

STINK BUG SCOUTING DECISION AID

A pocket-size scouting decision aid was developed for use in the Southeast to encourage (1) enhanced adoption of stink bug scouting in cotton, (2) better field identification of stink bug-induced boll damage symptoms, and (3) use of recommended scouting procedures. This publication describes the decision aid and how to use it. The aid relies on the latest dynamic threshold for stink bugs in cotton based on week of bloom. It provides the following scouting aids:

- A "dynamic threshold by week of bloom" table,
- Recommended scouting procedures,
- Measuring holes to help select the correct boll size range for damage assessments, and
- Images of internal and external stink bug-induced boll damage.

The aid should greatly improve stink bug management because the dynamic threshold is based on the cotton growth stages when the crop is most susceptible to stink bug damage. It relies on lower thresholds during weeks of maximum susceptibility (weeks 3 through 5 of the bloom period) and higher thresholds during stages of lower vulnerability (weeks 1 to 2 and weeks 6 to 9 of the bloom period).

DESCRIPTION AND USE

The front (Figure 1) side of the 3×6-inch decision aid provides recommended scouting procedures:

1. Select a random sample of the correct size bolls.
2. Assess an adequate number of bolls.
3. Sort the bolls into two piles, those with and those without obvious external damage lesions.
4. Crack bolls between the thumb and forefinger or cut them open with a knife and inspect all internal boll wall surfaces for internal warts (**not just areas visible from the initial crushing or from the initial knife cut**), and examine all locks for stained lint. (**Helpful hint**: crack and inspect bolls with obvious external lesions first to determine if the internal damage threshold is met, as bolls with external lesions are more likely to be damaged internally; assessing these bolls first can save time.)
5. If the threshold is not met, check the remaining bolls for internal damage.
6. Treat *only* if the threshold has been met for that week.

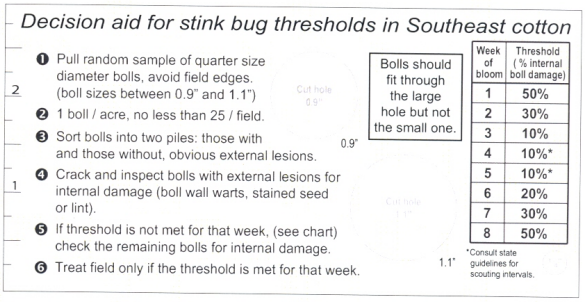


Figure 1. Front side of field decision aid showing scouting procedures, boll size selection range, and internal boll damage thresholds by week of bloom.

CLEMSON COOPERATIVE EXTENSION

Public Service Activities

Information Leaflet 89

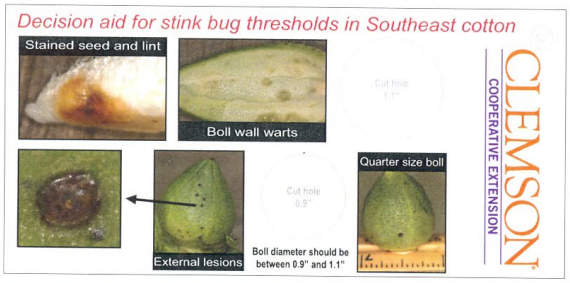


Figure 2. Reverse side of aid showing external and internal stink bug damage symptoms.

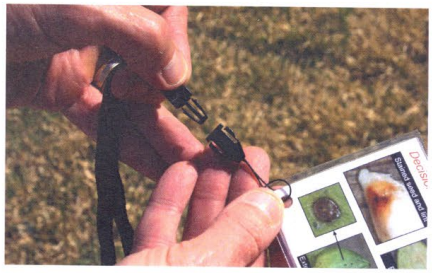


Figure 3. Lanyard with a quick disconnect for removing the aid to measure boll diameter.

The measuring holes provide an efficient way to select correctly sized bolls. Cotton scouts should target bolls with an outside diameter between 0.9 to 1.1 inches. **Bolls of this size correlate best with recent stink bug damage.**

The front side also lists the recommended dynamic threshold by week of bloom. The asterisks for weeks 4 and 5 of the bloom period permit nuances in scouting frequency recommendations by the various southeastern states.

The reverse side of the aid provides images to help properly identify stink bug damage: internal warts, and stained lint; and external damage lesions (Figure 2). As explained in recommendation 3, above, external damage symptoms may be used to sort the pulled bolls into two groups.

Each decision aid is fitted with a lanyard that can be worn around the scout's neck. The lanyard has a quick disconnect adjacent to the aid (Figure 3) for removing the aid to size bolls.

RESOURCES

For stink bug scouting details and additional cotton insect management information, see these Web sites:

- North Carolina State University: http://ipm.ncsu.edu/cotton/insectcorner/
- Virginia Tech: http://web.ento.vt.edu/ento/project.jsp?projectID=22
- Clemson University: http://www.clemson.edu/extension/rowcrops/cotton/
- University of Georgia: http://ugacotton.com

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Our recommendations for controlling stink bugs are included in the 2020 Pest Management Handbook (https://www.clemson.edu/extension/agronomy/pest%20management%20handbook.html), but I have included those here again this week to make them handy.

STINK BUGS

Product (non-pyrethroids)	Product/acre	Lb ai/acre	Acre/gal	REI	PHI	Comments
dicrotophos **(R)** Bidrin 8 E	4.0-8.0 oz	0.25-0.5	16-32	3 d	30 d	16 oz limit post bloom; low rates for tank mix only
acephate Orthene/Acephate 97 Orthene/Acephate 90	0.52-0.77 lb 0.55-0.83 lb	0.5-0.75	- -	24 hr	21 d	
oxamyl **(R)** Vydate 3.77 CLV	13.6-17.0 oz	0.4-0.5	7.5-9.4	48 hr	14 d	
novaluron Diamond 0.83 EC	9.0-14.0 oz	0.058-0.09	9.1-14.2	12 hr	30 d	Effective on nymphs only
Product (pyrethroids)	**Product/acre**	**Lb ai/acre**	**Acre/gal**	**REI**	**PHI**	**Comments**
bifenthrin **(R)** Discipline 2 EC or Brigade 2 EC or Fanfare 2 EC or Bifenture 2 EC	2.6-6.4 oz	0.04-0.1	20-50	12 hr	14 d	Control of spider mites at high rates
beta-cyfluthrin **(R)** Baythroid XL 1 EC	1.6-2.6 oz	0.0125-0.02	49-80	12 hr	0 d	
lambda-cyhalothrin **(R)** Karate Z 2.08 CS or Warrior II 2.08 CS Karate 1 EC or Silencer 1 EC or Lambda-Cy 1 EC	1.6-2.56 oz 3.2-5.12 oz	0.025-0.04	50-80 25-40	24 hr	21 d	
cypermethrin **(R)** Up-Cyde 2.5 EC	2.0-5.0 oz	0.04-0.1	25-64	12 hr	14 d	
zeta-cypermethrin/ bifenthrin **(R)** Hero 1.24 EC	5.2-10.3 oz	0.05-0.1	12.4-24.6	12 hr	14 d	
esfenvalerate **(R)** Asana XL 0.66 EC	9.6 oz	0.05	13	12 hr	21 d	
gamma-cyhalothrin **(R)** Declare 1.25 CS	1.28-2.05 oz	0.0125-0.02	63-100	24 hr	21 d	
zeta-cypermethrin **(R)** Mustang Max 0.8 EC	2.64-3.6 oz	0.017-0.0225	35-48	12 hr	14 d	
alpha-cypermethrin **(R)** Fastac 0.83 EC	3.6 oz	0.023	35.5	12 hr	21 d	

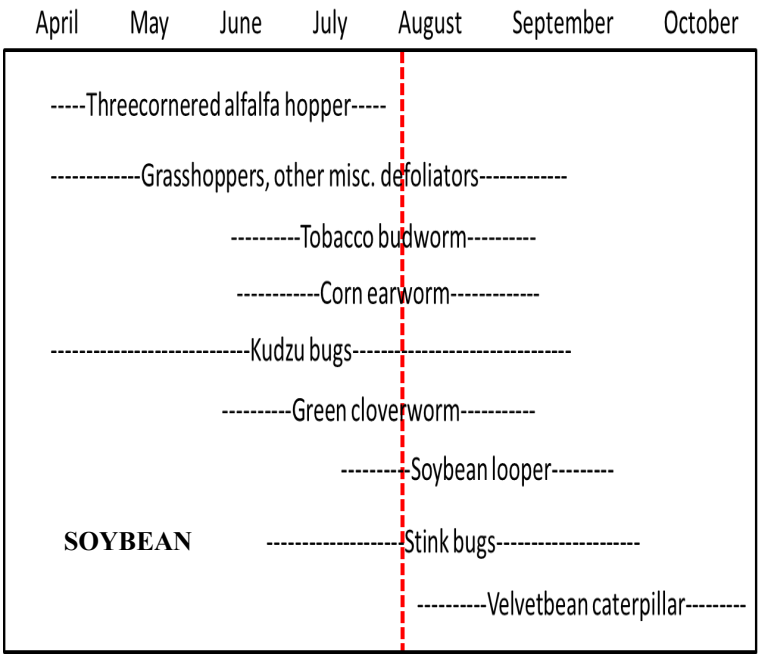
Treat when medium-sized bolls display symptoms of feeding injury by week of bloom (50, 30, 10, 10, 10, 20, 30, 50%) and stink bugs are present. Begin scouting for stink bugs when small bolls appear. Consider using a more aggressive (i.e. 10%) threshold during weeks 3-5 of bloom, as bolls developing during this growth stage are particularly susceptible. Randomly select at least 25 bolls (at least a quarter [1 inch] in diameter) per field (add 1 additional boll for each acre exceeding 25 acres). Break each boll open and examine the carpal walls, lint, and seeds for injury symptoms. Look for the presence of warty growths on the carpal walls and for discolored seed and lint. To ensure the accuracy of this sampling method, do not deviate from weekly checking of quarter-size diameter bolls. One may also rate an infestation based upon numbers of stink bugs by using a 3-ft beat cloth. When this method is used, an insecticide treatment will be warranted for 1 or more stink bugs per 6 feet of row. Carefully approach and shake the plants on at least 30 feet of row (10, 3-ft samples). Pyrethroids applied for bollworm control will generally provide control of stink bugs as well. Bidrin should be used in a pyrethroid tank-mix in fields with infestations predominated by brown stink bugs. Be especially vigilant for stink bugs when no treatments are being applied for control of caterpillars.

Soybean Situation

As of 2 August 2020, the USDA NASS South Carolina Statistical Office estimated that about 41% of the crop is blooming, compared with 25% the previous week, 40% at this time last year, and 43% for the 5-year average. About 16% of the crop is setting pods, compared with 3% the previous week, 7% at this time last year, and 10% for the 5-year average. The condition of the crop was described as 18% excellent, 52% good, 17% fair, 8% poor, and 5% very poor. These are observed/perceived state-wide averages.

Soybean Insects

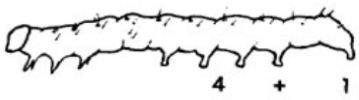
We are still in a pattern in soybeans where we have many different species and no one species is taking over the field. Populations of soybean looper (SBL) are picking up, but there are many green cloverworms (GCW) out there also. Small GCW "loop" when they crawl and look just like SBL. You have to look very closely with magification to properly identify the two. Costly materials are needed for control of SBL, but you can control GCW easily with a pyrethroid.



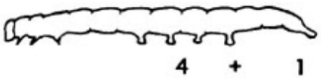
Populations of podworm are low in most soybeans I have checked. We mostly have the defoliating complex of SBL, GCW, and VBC. Watch defoliation, as it is increasing. Don't let defoliation exceed 30% before mid-bloom or 15% after that. Estimate defoliation at least weekly, as things can change quickly. Remember how quickly VBC defoliated fields last year? It was inside of a week. Check twice per week, if you can. Use a sweep net or a drop cloth to make counts of insects to see what species you have, as insecticide choice depend on proper identification of species. I am seeing

hatch outs of stink bugs now in soybeans that are setting pods. Eggs deposited by adults moving in recently are hatching. Here is a photo of early instars of the southern green stink bug hanging around the egg mass. Thresholds for all important species are in the Pest Management Handbook. Be able to recognize larvae and moths! Use the chart here for identifying adults and larvae.

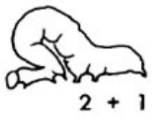
FIELD KEY TO COMMON SOYBEAN CATERPILLARS



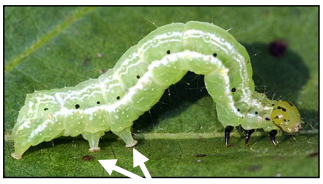
CORN EARWORM
4 + 1 pair prolegs
Curls up in hand
Black "warts" on body



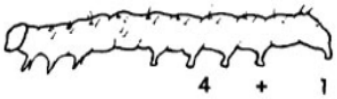
VELVETBEAN CATERPILLAR
4 + 1 pair prolegs
Very active when handled



SOYBEAN LOOPER
2 + 1 pair prolegs
Fatter at tail end
Looping movement



GREEN CLOVERWORM
3 + 1 pair prolegs
Not fatter at tail end
Looping movement



TOBACCO BUDWORM
4 + 1 pair prolegs
Curls up in hand
Black "warts" on body

(2017) Prepared by Jeremy Greene, Professor of Entomology

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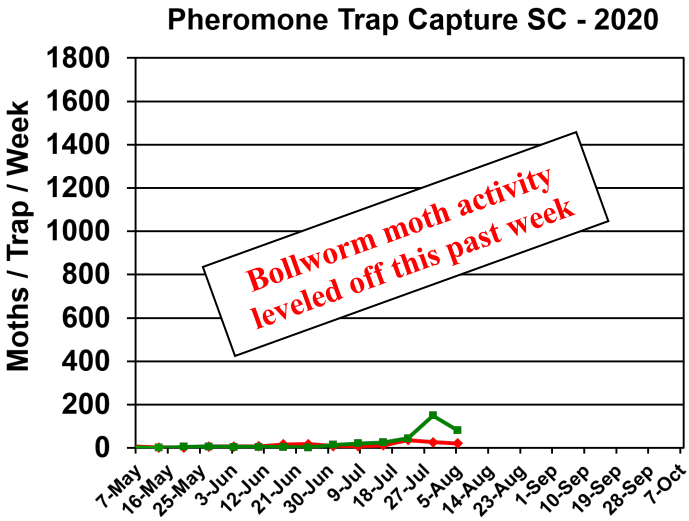
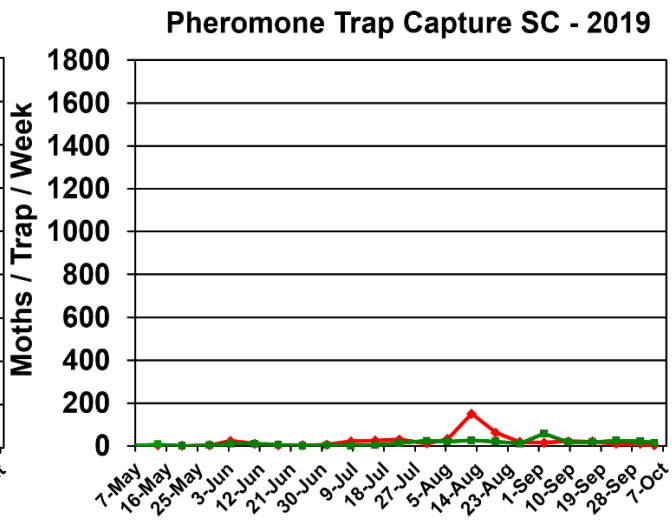
Public Service Activities

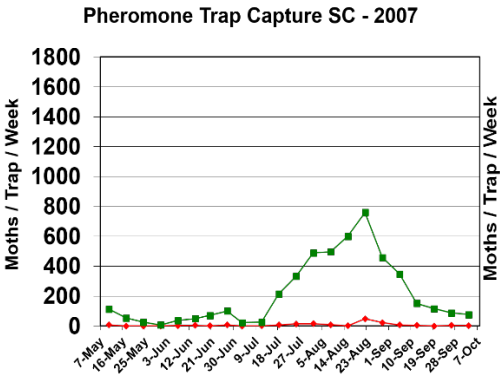
Bollworm & Tobacco Budworm

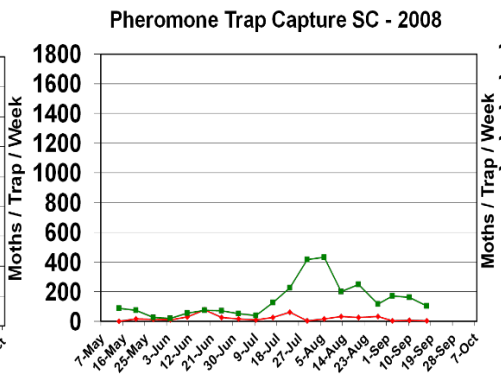
Captures of bollworm (BW) and tobacco budworm (TBW) moths in pheromone traps at EREC this season are shown below, as are the captures from 2007-2019 for reference. Tobacco budworm continues to be important for our soybean acres and for any acres of non-Bt cotton. I provide these data as a measure of moth presence and activity in our local area near my research plots. The numbers are not necessarily representative of the species throughout the state.

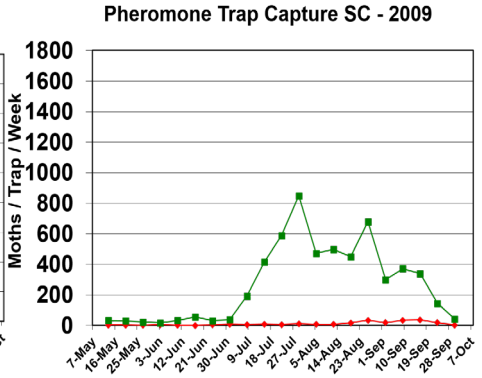


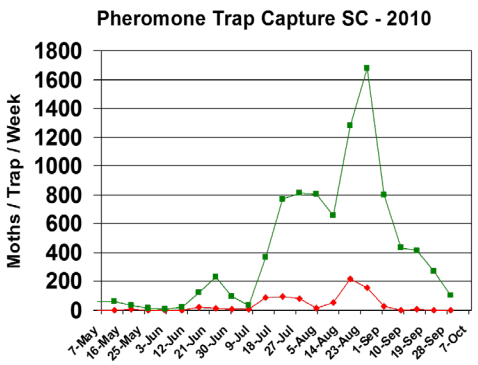


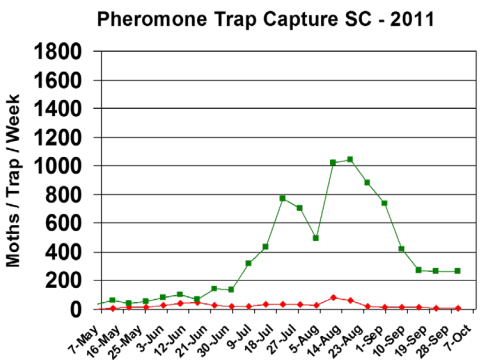
Trap data from 2007-2018 are shown below for reference to other years of trapping data from EREC:

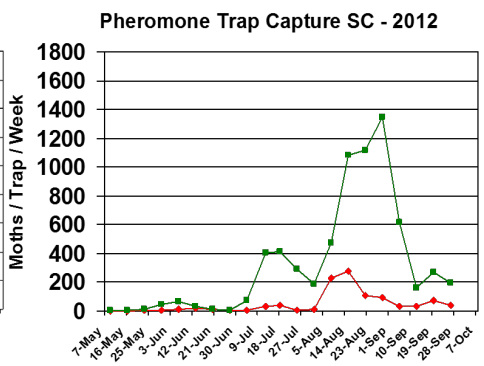


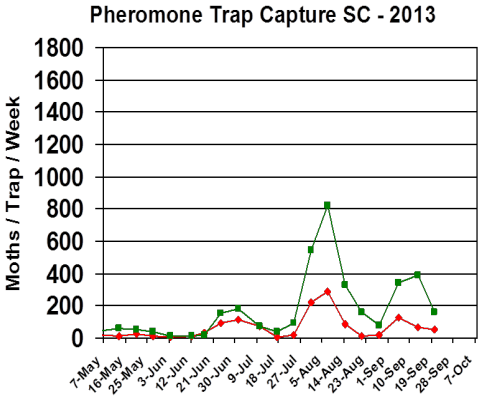


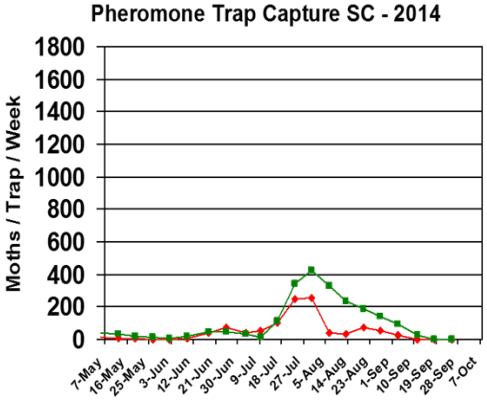


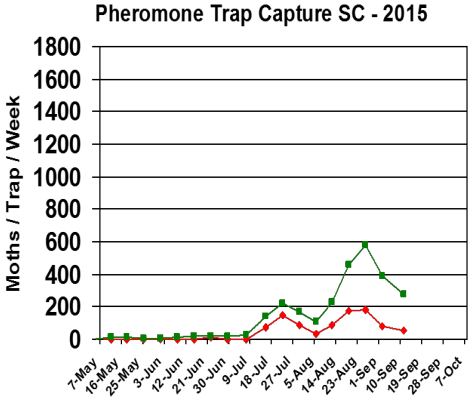


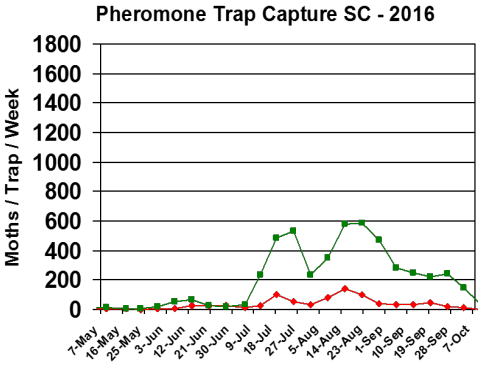


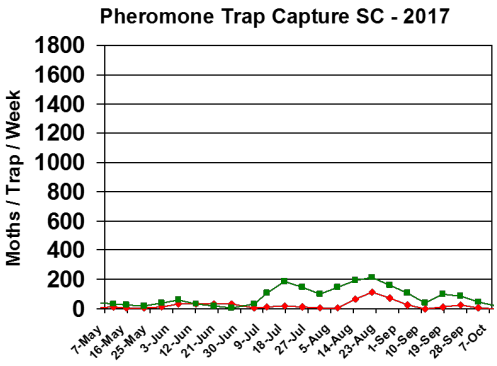


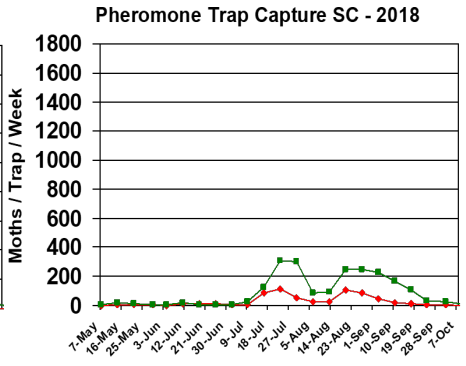








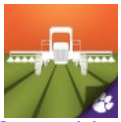




Pest Management Handbook – 2020

Insect control recommendations are available online in the 2020 South Carolina Pest Management Handbook at:
https://www.clemson.edu/extension/agronomy/pest%20management%20handbook.html

Free Mobile Apps: "Calibrate My Sprayer" and "Mix My Sprayer"



Download our free mobile apps called "Calibrate My Sprayer" and "Mix My Sprayer" that help check for proper calibration of spraying equipment and help you with mixing user-defined pesticides, respectively, in custom units (available in both iOS and Android formats):
http://www.clemson.edu/extension/mobile-apps/

Need More Information?

For more Clemson University Extension information: http://www.clemson.edu/extension/

For historical cotton/soybean insect newsletters:
https://www.clemson.edu/extension/agronomy/cotton1/newsletters.html

Sincerely,

Jeremy K. Greene, Ph.D.
Professor of Entomology

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